



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/716,794

11/19/2003

John James Daniels

1084-0002

6787

7590 05/01/2007
Michaud-Duffy Group LLP
306 Industrial Park Road, Suite 206
Middletown, CT 06457

EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1762

MAIL DATE

DELIVERY MODE

05/01/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/716,794	Applicant(s) DANIELS, JOHN JAMES	
	Examiner Jimmy Lin	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 4-7, 10-17 and 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8, 9, 18 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/20/2007 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 8-9, 18, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Broer et al. (WO 2002/42832) in view of Hikmet (U.S. Patent No. 5,748,271).

Broer discloses a method of making a liquid crystal display (LCD) (abstract). A mixture of photo-polymerizable material and liquid crystal molecules are formed over an electrode 8. The mixture is pattern-wise irradiated with actinic radiation through a mask. Polymerization takes place upon irradiation. The liquid crystal diffuses out of the illuminated regions and the polymer diffuses into the illuminated regions (paragraph bridging pg. 22-23; Fig. 5A).

Broer does not explicitly teach that the mixture of photo-polymerizable material and liquid crystal molecules comprises a light active material. However, Broer does teach that the liquid crystal material can be mixed with one or more dichroic dyes (pg. 15, lines 33-34), and Hikmet teaches that dichroic dyes can exhibit EL properties (col. 4, lines 14-25). It would have been obvious to one of ordinary skill in the art at the time of invention to have used the dichroic dye of Hikmet that exhibits EL properties in the liquid crystal mixture of Broer with a reasonable expectation of success because Broer teaches that the liquid crystal material can be mixed with any dichroic dyes. The dichroic dyes are interpreted to be the light active material as claimed.

Art Unit: 1762

Claim 18: Broer teaches that the electrodes can be patterned (pg. 6, lines 22-24). The electrodes can generate an electric field that aligns the light active material (pg. 14, lines 1-7).

Claims 2,26: Broer teaches that the light active material is disposed between first and second electrodes (pg. 5, lines 25-29).

Claims 3,9,27: Hikmet teaches that the light active material can be a perylene (i.e., an organic compound) (col. 4, lines 18-29). The light active material exhibits EL properties, which would necessarily emit light when a voltage is applied to the first and second electrodes.

Claim 8,28: The perylene dye of Hikmet is a conjugated molecule that exhibits EL properties.

4. Claims 1-3, 8-9, 18, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (U.S. Patent No. 6,304,309) in view of Hikmet '271.

Yamanaka discloses a method of making an LCD (abstract). A mixture of polymer precursor and a liquid crystal material is applied over a bottom electrode 9. The mixture is selectively irradiated with UV light through openings 9a and 5a. As a result of the light exposure, the precursor diffuses into the UV light area and polymerizes to form supporting members 31. The light active material is concentrated in the unexposed areas to form the liquid crystal layer 41 (col. 63, lines 1-30; Figs. 47(d)-50(i)).

Yamanaka does not explicitly teach that the mixture of polymer precursor and a liquid crystal material comprises a light active material. However, Yamanaka does teach that a dichroic dye can be added to the liquid crystal mixture (col. 63, lines 10-11; col. 64, lines 4-7). Hikmet teaches the obviousness of using a dichroic dye having EL properties, as discussed above.

Claim 18: Yamanaka teaches that the electrodes 9 can be patterned (Fig. 47(d)). The electrodes can generate a voltage to align the light active material (col. 37, lines 1-6).

Claims 2,26: Yamanaka teaches that the light active material is disposed between a first electrode 9 and a second electrode 14 (Fig. 50(i)).

Claims 3, 8-9, and 27-28 are rejected for substantially the same reasons as discussed above.

Art Unit: 1762

5. Claims 1-3, 8-9, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rorison et al. (GB 2344691 A) in view of Krohn et al. (U.S. Publication No. 2003/0022957).

Rorison discloses a method of making a polarized EL device, wherein the light active materials can be cross-linked (pg. 16, 1st full paragraph). The polarization of the light active materials can be done by selectively fixing the fluid matrix with a UV light (pg. 12, 2nd and 3rd full paragraphs).

Rorison does not explicitly teach cross-linking a monomer from a mixture containing the monomer and the light active material. However, it is well known in the EL art to use a mixture of a monomer and a light active material in the process of making a cross-linked EL layer (see e.g., Krohn, [0190]-[0193]). It would have been obvious to one of ordinary skill in the art at the time of invention to cross-link the monomer from a mixture containing a monomer and a light active material because such a mixture is suitable for the process of making a cross-linked EL layer.

Upon selective cross-linking, the polymerized EL portion would contain the light active material in a matrix of polymer material. The matrix of polymer material would necessarily have portions containing the light active material and portions that lack the light active material. The portions containing the light active material has been interpreted to be a concentration of the light active material at the first region while the portions lacking the light active material has been interpreted to be a concentration of polymer at the second region.

Claim 25: Rorison and Krohn do not explicitly teach the migration of the monomer by selective cross-linking of the monomer. However, the exposure to light energizes the monomers to start a reaction with other monomers. In other words, the monomers link to one another to form a polymer. Such a reaction would necessarily cause some sort of migration of the monomers at the molecular level.

Claim 2,26: Rorison teaches that the light active material 22 is disposed between a cathode layer 23 and an anode layer 21 (pg. 8, 4th paragraph).

Claim 3,27: Rorison teaches that the EL device can have an organic emitter layer (pg. 1, 2nd paragraph).

Claim 8,28: Rorison teaches that PPV is a suitable light active material (pg. 10, 2nd paragraph). The present specification exemplifies PPV as a suitable conjugated EL polymer (pg. 99, lines 10-15).

Claim 9: Rorison teaches that the light active layer 54 and a bottom electrode 52 are deposited over a substrate 51 (Fig. 9f).

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rorison '691 in view of Krohn '957 as applied to claim 18, and further in view of Song (U.S. Publication No. 2001/0050746).

Rorison and Krohn are discussed above. Rorison teaches that an electric field or a magnetic field is applied to the light active material in order to align the molecules (pg. 12, 2nd full paragraph), but does not explicitly teach using the patterned electrodes to define the aligning field. However, the Examiner takes Official Notice that it is well known in the art of display devices that an electric field can be applied using electrodes to align molecules between the electrodes (see, e.g., Song, [0004]). The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have applied an electric field using the patterned electrodes of Rorison and Krohn to have aligned at least one of the light active layers with a reasonable expectation of success because it is well known in the art of display devices that creating an electric field with the display electrodes is suitable for aligning molecules between the electrodes.

Double Patenting

7. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

Art Unit: 1762

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

8. Claims 1-2 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-2 of copending Application No. 11/453627. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 3, 8-9, 18, and 25-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3-7 of copending Application No. 10/453627 in view of Rorison '691.

The only difference between the present claims and the claims of '627 is that the present claims require an *organic* light active material while the claims of '627 require an *inorganic* light active material. However, Rorison teaches that either an organic material or an inorganic material can be used in a light active device such as EL displays (pg. 1, 2nd paragraph). One of ordinary skill would have recognized that either material would have been operable for making

Art Unit: 1762

an EL device. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used an organic EL material, as opposed to an inorganic material, in the method of making the light active device of '627 because Rorison teaches that the two types of materials are functional equivalents.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

11. Applicant's arguments filed 2/20/2007 have been fully considered but they are not persuasive.

The Applicant argues on pg. 8 that Rorison discloses cross-linking for giving a uniform alignment direction, rather than disclosing any effect on the concentration of the light active material or the polymer. However, the concentration of the light active material or polymer is inherent in the process of Rorison. Upon selective cross-linking, the polymerized EL portion would contain the light active material in a matrix of polymer material. The matrix of polymer material would necessarily have portions containing the light active material and portions that lack the light active material. The portions containing the light active material has been interpreted to be a concentration of the light active material at the first region while the portions lacking the light active material has been interpreted to be a concentration of polymer at the second region.

The Applicant argues on pg. 9 that a failure of an electroluminescent composition to react before or after curing is not the same as selectively cross-linking the monomer and nowhere does Krohn expressly disclose selectively cross-linking the monomer in the EL composition. However, Rorison teaches selectively fixing parts of the fluid matrix (pg. 12, last paragraph) while Krohn teaches cross-linking of monomers using UV light.

The Applicant argues on pg. 9 that the Examiner has not provided any evidence that the monomer in Krohn's EL composition will inherently be selectively cross-linked to form concentrated regions of light active material. However, selective fixing is taught by Rorison and the inherency of concentration regions is discussed above.

The Applicant argues on pg. 9 that the method of Rorison discloses cross-linking the emitter materials utilizing UV light to "give a uniform direction" and in contrast Krohn discloses

applying an EL composition comprising a monomer to a substrate followed by curing the EL composition using UV light. However, the Applicant is directed to the last two paragraphs of pg. 12 of Rorison. The fluid matrix can be fixed by irradiating the matrix with UV light. Accordingly, Krohn teaches that cross-linking via irradiation of UV light can fix a fluid matrix.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL
JL


KEITH HENDRICKS
PRIMARY EXAMINER